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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re patent application of

Julen Burgoa ARTECHE et al.

Before the Board of Appeals

Serial No. 10/565,381

Art Unit: 1797

Filed: January 23, 2006

Examiner: M. Gonzalez

For: FUEL FILTER

APPELLANT'S BRIEF (37 CFR 41.37)

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Date: February 10, 2011

Sir:

This Brief is filed in support of the Notice of Appeal filed on September 10, 2010,  
appealing the Examiner's decision of making final a rejection of claims 15-19, 25-28 and 30-  
40.

The \$540 fee for this Appeal Brief and any other required fee should be charged to  
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## II - RELATED APPEALS AND INTERFERENCES

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal, there are no such appeals or interferences. None

### III - STATUS OF CLAIMS

#### A. TOTAL NUMBER OF CLAIMS IN APPLICATION - Twenty (20).

Claims in the application are: 15-19, 25-28 and 30-40.

#### B. STATUS OF ALL THE CLAIMS

1. Claims canceled: 1-14, 20-24 and 29.
2. Claims withdrawn from consideration but not canceled: None.
3. Claims pending: 15-19, 25-28 and 30-40.
4. Claims allowed: None.
5. Claims rejected: 15-19, 25-28 and 30-40.

#### C. CLAIMS ON APPEAL

The claims on appeal are: 15-19, 25-28 and 30-40.

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#### IV - STATUS OF AMENDMENTS

An amendment was filed on August 11, 2010, after the final rejection. An Advisory Office action was mailed on August 20, 2010, refusing entry of the after-final amendment. Thus, no changes have been made to the claims that were finally rejected and the last entered amendment containing the claims on appeal is the amendment filed on March 12, 2010.

## V - SUMMARY OF CLAIMED SUBJECT MATTER

In the following summary, all references to pages and lines can be found in the original English-language specification filed on January 23, 2006. However, it should be noted that the original English-language specification contained a number of minor errors that were corrected by the preliminary amendment also filed on January 23, 2006 and by the amendment filed on March 12, 2010. The references to pages and lines in the following summary are intended as examples of where the claim language may be found in the specification and are not intended to be exclusive.

Independent claim 15 is directed to a fuel filter (pg. 1, ll. 1-2), comprising an elongated flat filter housing (2, pg. 6, l. 12) having a longitudinal axis (Fig. 1, pg. 7, l. 5), at least first and second longitudinally extending side walls (2a, 2b - Figs. 3, 4), and opposing ends (2e, 2f - Figs. 1, 2) extending vertically to the longitudinal axis (Fig. 1), at least one substantially elongated flat filter element (11) contained in the housing, the at least one substantially flat filter element being embodied overall as planar or flat in shape (pg. 7, l. 9-10, Figs. 3, 4) having a clean side (13) and a dirty side (side facing bottom region 18 - pg. 7, ll. 17-20 & pg. 13, ll. 7-9) which are both substantially planar and are situated essentially parallel to each other (Figs. 3, 4), the clean side being disposed between a first elongated surface of the flat filter element and the first side wall of the housing (Figs. 3, 4, pg. 7, ll. 13-14 & pg. 8, l. 1), and the dirty side being disposed between a second elongated surface of the flat filter element and the second side wall of the housing (2b), which second elongated surface opposes the first elongated surface (Figs. 3, 4)

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Accordingly, should the prior art rejection to claim 15 be reversed, appellants commit to amending claim 26 to depend from claim 15 in order to remove the noted inconsistency/contradiction.

VI - GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 15-19, 25-28, 31-35, 38 and 39 are unpatentable under 35 U.S.C. 103(a) over Hopkins et al (US 5,620,599).

Whether claim 30 is unpatentable under 35 U.S.C. 103(a) over Hopkins et al (US 5,620,599) in view of Domnick (US 4,105,561).

Whether claim 36 is unpatentable under 35 U.S.C. 103(a) over Hopkins et al (US 5,620,599) in view of Janik et al (US 6,364,121).

Whether claim 37 is unpatentable under 35 U.S.C. 103(a) over Hopkins et al (US 5,620,599) in view of Hawkins et al (US 6,361,684).

Whether claim 40 is unpatentable under 35 U.S.C. 103(a) over Hopkins et al (US 5,620,599) in view of Coates et al (US 5,707,518).



## VII - ARGUMENTS

### Rejection under 35 U.S.C. 103(a) over Hopkins et al (US 5,620,599).

#### Claims 15-19, 25-28, 31-35, 38 and 39

Appellants respectfully submit that the examiner erred in rejecting claim 15 because Hopkins et al fail to disclose (1) an elongated flat filter housing having at least first and second longitudinally extending side walls and opposing end walls extending vertically to the longitudinal axis, and (2) an elongated flat filter element embodied overall as planar or flat in shape having a clean side and a dirty side which are both substantially planar and situated essentially parallel to each other, and providing Hopkins et al with these features would not have been an obvious matter of choice, as explained below.

The invention of Hopkins et al is directed to a filter assembly, and more particularly, to a low hold-up volume filter assembly which provides for reduced fluid hold-up volume waste when replacing filters and for even flow distribution through the filter during normal operation (col.1, ll. 11-15).

At col. 3, ll. 8-14, Hopkins et al state "In accordance with the invention, the filter assembly utilizes one or more components which fit into a filter housing and occupy a significant portion of the volume of the housing, thereby leaving less fluid in the housing during filter change. The components are configured to provide very small, even negligible, pressure drops and even flow distribution along a filter disposed in the filter housing."

As shown in Figs. 1-3, the reference to Hopkins et al teaches that the filter assembly (100) comprises an elongated cylindrical filter housing (200) and an elongated cylindrical filter element (300). The reference lacks any disclosure whatsoever of (1) an elongated flat filter housing having at least first and second longitudinally extending side walls and

opposing end walls extending vertically to the longitudinal axis, and (2) an elongated flat filter element embodied overall as planar or flat in shape having a clean side and a dirty side which are both substantially planar and situated essentially parallel to each other; as recited in independent claim 15.

The examiner acknowledges that Hopkins et al lack a disclosure of the specific shape of the filter housing and the filter element (Final Office action mailed May 11, 2010 - pg. 3). However, the examiner asserts that it would have been obvious to one skilled in the art to have provided the filter housing and the filter element of Hopkins et al with a housing of the shape claimed by appellants as a "*matter of choice*" absent persuasive evidence that the particular configuration was significant since Hopkins et al suggests that the filter housing (200) may be configured in a variety of ways (col. 2, ll. 17-18) and the filter element (300) may have any suitable configuration (col. 3, l. 67 - col. 4, l.1).

Thus, the issue is whether the examiner has adequately provided a convincing line of reasoning for the conclusion that it would have been an obvious "matter of choice" to have changed the shape of the filter assembly as suggested by the examiner in the rejection.

Appellants submit that the examiner's finding that the claimed shape of the filter housing and the filter element would have been an obvious "matter of choice," is faulty since:

"To support a conclusion that a claim is directed to obvious subject matter ... an Examiner must present a 'convincing line of reasoning' as to why one of ordinary skill in the art would have found the claimed subject invention to have been obvious. *Ex parte Clapp*, 227 USPQ 972, 973 (BPAI 1985). When determining whether a rejection based on design choice is appropriate, the Examiner must review the Specification and ascertain *if the limitation in question* is disclosed as serving an advantage or particular purpose, or whether it solves a stated problem. The examiner also should explain the reasoning used to determine that the prior art would have performed equally

well as the claimed invention. These two steps help present the  
aforementioned "convincing line of reasoning." *Ex parte*  
*Clapp*, 227 USPQ at 973.

The Board's attention is directed to pgs. 1 and 2 of the application specification wherein appellants disclose that the problem with known filter housings having a beaker-shaped (i.e., a cylindrical-shaped) bottom part containing a cylindrical star filter, as known from DE 198 11 689 A1 (pg. 1, l. 3), is that these previously known filters are comparatively bulky and are difficult to integrate into the engine compartment of a vehicle (pg. 2, ll. 1-2). Thus, a surprising discovery has been made that instead of star filter inserts, it is possible to use flat filter elements in which the clean side and the dirty side are situated essentially parallel to each other. This configuration makes it possible to embody the fuel filter as a whole as flat and therefore to be significantly flatter than would be possible with the use of star filter inserts, while providing the same through flow capacity. This yields a significantly greater possibly [for] structural variety, thus allowing the form of the fuel filter to be better adapted to the space available in the engine compartment (pg. 2, ll. 6-12).

Thus, not only does appellants' specification identify a problem associated with known cylindrical-shaped filters containing a cylindrical star filter, such as the star filter insert disclosed in Fig. 2 of Hopkins et al, but appellants' specification discloses a purported advantage and an unexpected result of using flat fuel filters containing flat filter elements in which the clean side and the dirty side are situated essentially parallel to each other. Namely, using a flat fuel filter that is less bulky than a cylindrical fuel filter has the advantage of allowing the fuel filter to be better adapted to the space available in the engine compartment, and using a flat filter element in which the clean side and the dirty side are situated essentially parallel to each other has the unexpected result of providing the same through

capacity as cylindrical star filter inserts. Accordingly, appellants disclosure of a problem with known cylindrical fuel filters with cylindrical star-shaped filter inserts coupled with appellants disclosure of the advantages and the unexpected results obtained by using a fuel filter that as a whole is flat, particularly a flat fuel filter using flat filter elements in which the clean side and the dirty side are situated essentially parallel to each other, militates against a conclusion that the shape of the fuel filter housing and fuel filter element, as claimed, is merely an obvious "matter of choice." Therefore, since *the limitations in question* are disclosed by appellant as serving an advantage or a particular purpose, solving a stated problem and producing an unexpected result, issues which have not been addressed, appellants submit that a "convincing line of reasoning" has not been provided by the examiner to support the conclusion that the particular filter configuration is an obvious "matter of choice."

Moreover, the second step of the two step analysis set forth in *Ex parte Clapp* obligates the examiner to explain the reasoning used to determine that the prior art would have performed equally as well as the claimed invention. The examiner has not addressed whether the prior art filter assembly of Hopkins et al would have performed equally as well as the claimed invention. Appellants submit that a person of ordinary skill in the art would not reasonably infer or deduce anything about the through flow capacity of the flat filter element of the present invention or that there is a particular advantage to using a flat filter element embodied overall as planar or flat in shape having a clean side and a dirty side which are both substantially planar and situated essentially parallel to each other. Namely, a person of ordinary skill in the art would not infer or deduce from Hopkins et al that using a flat filter element embodied overall as planar or flat in shape having a clean side and a dirty side which

are both substantially planar and situated essentially parallel to each other would have the advantage of providing the same through flow capacity as star filter inserts, such as the one disclosed in Hopkins et al (Fig. 2, col. 4, ll. 15-27). Therefore, the second step of the two step analysis set forth in *Ex parte Clapp* as necessary to establish "a convincing line of reasoning" has not been met.

Consequently, without some line of convincing reasoning on the examiner's part, the identified differences between the claimed invention and that of Hopkins et al is not so "minor" that the examiner may conclude that the differences are merely an obvious "matter of choice." Thus, claim 15 is not rendered obvious by Hopkins et al in view of the legal precedent cited by the examiner.

Nonetheless, despite the disclosure in Hopkins et al that the filter housing may be configured in a variety of ways (col. 3, ll. 17-18), that the filter element may have any suitable configuration (col. 3, l. 67 - col. 4, l. 1), and that prior case law has held that a change in shape was a matter of choice to a person skilled in the art absent persuasive evidence that the particular configuration was significant (Office action mailed May 11, 2010, pg. 4), appellants further submit that the examiner's conclusion that the claimed shapes would have been an obvious "matter of choice" is based on speculation or conjecture since the examiner has not provided the requisite factual basis to support the legal conclusion of obviousness for the following reasons:

Rejections based on 35 U.S.C. §103 must rest on a factual basis. In making such a rejection, the examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. *See In re*

*Warner*, 379 F.2d 1011, 1017 (CCPA 1967). Further, in rejecting claims as unpatentable on the basis of obviousness, the examiner must provide "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l. Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007).

At col. 3, ll. 17-18, the reference to Hopkins et al states that the filter housing may be configured in a variety of ways. However, exactly what the phrase a "variety of ways" is referring to is open to conjecture since Hopkins et al do not elucidate. What is evident though is that the reference to Hopkins et al has no indication whatsoever what other filter housing configuration may be appropriate in order to provide the required uniform flow distribution along the filter element while maintaining desired system flow rates and pressures (col. 3, ll. 6-8), or the very small, even negligible, pressure drops and even flow distribution along a filter disposed in the filter housing (col. 3, ll. 12-15). More specifically, the reference to Hopkins et al clearly does not disclose, teach or suggest that an elongated flat filter housing having at least first and second longitudinally extending side walls and opposing end walls extending vertically to the longitudinal axis, as recited in independent claim 15, would be an appropriate configuration that would provide the required uniform flow distribution along the filter element while maintaining desired system flow rates and pressures, or the very small, even negligible, pressure drops and even flow distribution along a filter disposed in the filter housing.

Further, at col. 3, l. 67 - col. 4, l. 1, the reference to Hopkins et al states that the filter element may have any suitable configuration. However, exactly what the phrase "suitable configuration" is referring to is open to conjecture as well since Hopkins et al do not elucidate. What is evident though is that the reference to Hopkins et al has no indication

whatsoever what other filter element configuration may be suitable so as to provide the required reduction in hold-up volume waste (col. 3, ll. 5-6), uniform flow distribution along the filter element while maintaining desired system flow rates and pressures (col. 3, ll. 6-8), or the very small, even negligible, pressure drops and even flow distribution along a filter disposed in the filter housing (col. 3, ll. 12-15). More specifically, the reference to Hopkins et al clearly does not disclose, teach or suggest that an elongated flat filter element embodied overall as planar or flat in shape having a clean side and a dirty side which are both substantially planar and situated essentially parallel to each other, as recited in independent claim 15, would be a suitable configuration that would provide for the required reduction in hold-up volume waste, uniform flow distribution along the filter element while maintaining desired system flow rates and pressures, or the very small, even negligible, pressure drops and even flow distribution along a filter disposed in the filter housing.

Additionally, the examiner has provided no finding of fact which would have led one of ordinary skill in the art, absent speculation, unfounded assumptions or hindsight reconstruction, to believe that providing Hopkins et al with (1) an elongated flat filter housing having at least first and second longitudinally extending side walls and opposing end walls extending vertically to the longitudinal axis, and (2) an elongated flat filter element embodied overall as planar or flat in shape having a clean side and a dirty side which are both substantially planar and situated essentially parallel to each other would result in a filter assembly that would have provided for the reduction in hold-up volume waste, the uniform flow distribution along the filter element while maintaining desired system flow rates and pressures, or the very small, even negligible, pressure drops and even flow distribution along a filter disposed in the filter housing required by the device of Hopkins et al. Furthermore,

the examiner has not provided "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness" that would logically explain why one skilled in the art would have modified the shape of the filter assembly as proposed by the examiner, particularly in view of the fact that the reference to Hopkins et al never mentions any other specific filter housing configuration that may be appropriate or any other filter element configuration that may be suitable for providing the reduction in hold-up volume waste, the uniform flow distribution along the filter element while maintaining desired system flow rates and pressures, or the very small, even negligible, pressure drops and even flow distribution along a filter disposed in the filter housing. Appellants submit that changing the shape of the filter housing from cylindrical to flat, and the shape of the filter element and the surrounding sleeve, from cylindrical to flat, as recited in claim 15, would cause more turbulence in the filter assembly due to increased turbulence at the corners of the flat filter housing and flat filter element. The increase in turbulence would at least disrupt uniform flow distribution along the filter element and/or even flow distribution along a filter disposed in the filter housing of the filter assembly.

Accordingly, appellants submit that since the examiner has not provided sufficient evidence to support the determination that it would have been obvious as a "matter of choice" to have modified the filter assembly of Hopkins et al to reflect the claimed features, namely, an elongated flat filter housing having at least first and second longitudinally extending side walls and opposing end walls extending vertically to the longitudinal axis and an elongated flat filter element embodied overall as planar or flat in shape having a clean side and a dirty side which are both substantially planar and situated essentially parallel to each other, for the



reasons discussed above, the invention as set forth in claim 15 is not rendered obvious as required by 35 U.S.C. 103.

#### Claim 27

Appellants respectfully submit that the examiner erred in rejecting claim 27 because Hopkins et al fail to disclose a flow entry that at least reduces turbulence in the region of the side where the flow strikes the filter element.

Claim 27 depends from claim 15. Claim 27 further requires a flow entry that at least reduces turbulence in the region of the side where the flow strikes the filter element.

The examiner broadly states that Hopkins et al, in Fig. 3, discloses a flow entry that at least reduces turbulence in the region of the side where the flow strikes the filter element (302), but provides no further explanation.

At pg. 3, ll. 15-19 of appellants' specification, it is disclosed that the flow entry of the fuel into the fuel filter housing is designed to reduce or eliminate turbulence by using a flow baffle (17) in the region of the fuel inlet.

In Hopkins et al, fluid enters the filter assembly through the inlet port (202) and flows past the periphery of the first end cap (304) and into the axially oriented paths (420) of each of the four sets of I-shaped channels. (col. 7, ll. 9-13). There is no teaching in the reference to Hopkins et al, particularly Fig. 3, that the flow entry reduces turbulence in the region of the side where the flow strikes the filter element as concluded by the examiner. Appellants submit that, contrary to the examiner's conclusion, fluid flow striking the edge of the end cap (304) prior to flowing past the periphery of the end cap would increase turbulence, not reduce it.

The examiner's conclusion that the filter element would reduce turbulence appears to be based on speculation or conjecture since the examiner has provided no factual finding of fact or articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at \_\_\_, 82 USPQ2d at 1396 quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).

In as much as the examiner has not provided any evidentiary basis proving the teachings of the prior art and linking those teachings to the claim limitations at hand, appellants submit that without a secondary reference teaching this feature, there is simply no factual basis for concluding that claim 27 is obvious based on the teachings of Hopkins et al.

### Claim 33

Appellants respectfully submit that the examiner erred in rejecting claim 33 because Hopkins et al fail to disclose that the housing part and the cover are connected to each other by means of a nondetachable connection.

Claim 33 depends from claim 15. Claim 33 further recites that the housing part and the cover are connected to each other by means of a nondetachable connection.

In Hopkins et al, the filter housing (200) comprises a container portion (206) and a cover portion (208) which are removably connected to one another, e.g., by threaded regions on the container and cover portion (206, 208), respectively (col. 3, ll. 19-24).

In the Office action mailed May 11, 2010, at pg. 5, the examiner concludes that it would have been obvious to a person skilled in the art to have made the connection between the housing part and the cover in Hopkins et al nondetachable, as claimed, in order to facilitate its handling since the courts have held that "the use of a one piece construction instead of the structure disclosed in the prior art would be merely a matter of obvious engineering choice."

At col. 7, ll. 23-36, the reference to Hopkins et al discloses that once the filter 302 becomes sufficiently fouled to require replacement, flow is terminated and the cover 208 is removed from the filter housing 200 so that the housing 200 may then be cleaned, a new filter element 300 and sleeve 400 may be inserted into the container 206, and the cover 208 may be reconnected to the container 206. Thus, Hopkins et al "teaches away" from making the housing part and the cover nondetachable since Hopkins et al teach that the purpose of having a removable cover is to enable the housing to be cleaned and a new filter element and sleeve to be inserted into the container. Additionally, Hopkins et al further teach that if the sleeve is separate from the filter element, the sleeve may be cleaned and reused with the new filter element (col. 7, ll. 35-36).

Thus, the proposed modification would not have been obvious because it renders the Hopkins et al invention unsatisfactory for its intended purpose since the cover would no longer be capable of being removed to enable the filter housing to be cleaned, the fouled filter element and sleeve to be replaced with a new filter element and sleeve, or if the sleeve is separate from the filter element, the sleeve to be cleaned and reused. Replacement of the fouled filter element and sleeve, cleaning of the filter housing, and if the sleeve is separate

from the filter element, cleaning and replacement of the sleeve, is understood by appellants to be a critical feature of the Hopkins et al invention.

As explained in MPEP 2143.01 V, case law holds that a proposed modification cannot render the prior art unsatisfactory for its intended purpose.

“If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) . . .”

Accordingly, the proposed modification would not have been obvious and the examiner erred for this reason.

#### Claim 34

Appellants respectfully submit that the examiner erred in rejecting claim 34 because Hopkins et al fail to disclose a distribution stabilizer on the inlet side.

Claim 34 depends from claim 15. Claim 34 further requires a distribution stabilizer on the inlet side.

The examiner broadly states that Hopkins et al, in Fig. 3, discloses a distribution stabilizer (304) on the inlet side, but provides no further explanation.

At pg. 13, ll. 15-17 of appellants' specification, it is disclosed that the gap (16) and the bottom region (18) are series connected and matched to each other so that these parts inside the filter housing combine to constitute a particularly effective inlet distribution stabilizer (30).

In Hopkins et al, element 304 is described as a first end cap that is attached to the first end 308 of the filter 302 for sealing the end of the filter and preventing by-pass of the fluid around the filter (col. 4, ll. 30-33). In addition, Hopkins et al state that the end cap 304 may serve to position and hold the filter 302 in substantially axial alignment within the filter housing 200 and provide support therefore (col. 4, ll. 33-36). There is no teaching whatsoever in the reference to Hopkins et al, particularly Fig. 3 that the end cap (304) is a distribution stabilizer or functions in any way as a distribution stabilizer.

The examiner's conclusion that the end cap is a distribution stabilizer appears to be based on speculation or conjecture since the examiner has provided no finding of fact or articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at \_\_\_, 82 USPQ2d at 1396 quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).

In as much as the examiner has not provided any evidentiary basis proving the teachings of the prior art and linking those teachings to the claim limitations at hand, appellants submit that without a secondary reference teaching this feature, there is simply no factual basis for concluding that claim 34 is obvious based on the teachings of Hopkins et al.

Rejection under 35 U.S.C. 103(a) over Hopkins et al (US 5,620,599) in view of Domnick (US 4,105,561).

Claim 30

Claim 30 depends indirectly from claim 15 and further requires that the flow baffle is inclined upward in relation to the flow direction. The examiner cites Domnick for teaching a flow baffle inclined upward in relation to the flow direction. Domnick does not solve the basic deficiencies in Hopkins et al as previously set forth. Thus, even if it had been obvious to combine the teachings of Hopkins et al and Domnick, one of ordinary skill would not have arrived at the subject matter recited in claim 30.

Rejection under 35 U.S.C. 103(a) over Hopkins et al (US 5,620,599) in view of Janik et al (US 6,364,121).

Claim 36

Appellants respectfully submit that the examiner erred in rejecting claim 36 because Hopkins et al fail to disclose that the second side wall of the filter housing slopes downward toward a water outlet and constitutes a sump for the water separated out of the dirty side of the filter element, and providing Hopkins et al with this feature would not have been obvious in view of the teachings of Janik et al.

Claim 36 depends from claim 15. Claim 36 further requires that the second side wall of the filter housing slopes downward toward a water outlet and constitutes a sump for the water separated out of the dirty side of the filter element.

The examiner cites Janik et al for a teaching of a filter assembly (10) having a housing (60) with a wall sloping downward toward a water outlet that constitutes a sump (66) for water separated out on the dirty side of the filter element (col.3, ll. 15-19).

The examiner concludes that it would have been obvious to provide the filter housing of Hopkins et al with a wall sloping downward to form a sump and a water outlet, as taught by Janik et al, in order to collect water that coalesces from fuel, if the filter is used to filter fuel or oil (Office action mailed May 11, 2010, pg. 7).

Contrary to the examiner's conclusion, appellants submit that the rejection of claim 36 is not a proper or valid rejection for the reasons presented below.

Janik et al do not teach or suggest providing a filter housing with a longitudinally extending side wall sloping downwardly toward a water outlet that constitutes a sump for water separated out on the dirty side of the filter element. In col. 3, ll. 12-19, Janik et al teach a disposable fuel filter cartridge comprising a can-like housing 60 formed by a pair of opposed upper and lower cup-like sections 62, 64, respectively. A sump 66 is formed at the bottom of the lower section 64 to collect any water which coalesces from the fuel and may incorporate a selectively actuatable valve or draincock to permit draining of the collected water. However, Janik et al teach forming the sump in the end wall of the filter housing (60), not in the longitudinally extending side wall as claimed.

If one skilled in the art were to actually combine the teachings of Hopkins et al and Janik et al, without the benefit of hindsight, the resulting structure would be a filter assembly constructed according to the teachings of Hopkins et al, but with the end wall 213 of the filter housing 200 sloping toward a sump formed therein. In other words, Janik et al would have taught one skilled in the art to modify the end wall 213 of the filter housing 200 in Hopkins et

al, not the longitudinally extending side wall 211 of Hopkins et al as required by claim 36.

Thus, one of ordinary skill in the art would never have arrived at the subject matter defined in appellants' claim 36.

Accordingly, claim 36 is not rendered obvious by the combined teachings of Hopkins et al and Janik et al.

Additionally, the examiner's conclusion that one skilled in the art would have considered using the filter assembly of Hopkins et al as a fuel filter appears to be based on speculation or conjecture, particularly since Hopkins et al only disclose that the filter is to be used in the integrated circuit industry to filter photoresist used in photo lithography.

Rejections based on 35 U.S.C. §103 must rest on a factual basis. In making such a rejection, the examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. *See In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967). Further, in rejecting claims as unpatentable on the basis of obviousness, the examiner must provide "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l. Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007).

Accordingly, appellants submit that since the examiner did not provide sufficient factual evidence to conclude that one skilled in the art would have considered using the filter assembly of Hopkins et al to filter fuel, the invention as set forth in claim 36 is not rendered obvious for this reason as well.



Rejection under 35 U.S.C. 103(a) over Hopkins et al (US 5,620,599) in view of Hawkins et al (US 6,361,684).

Claim 37

Claim 37 depends directly from claim 15 and further requires that electrical connections for a heating unit, a temperature sensor and a water level sensor are provided on an end of the filter housing. The examiner cites Hawkins et al for teaching electrical connections for a heating unit, a temperature sensor and a water level sensor are provided on an end of the filter housing. Hawkins et al do not solve the basic deficiencies in Hopkins et al as previously set forth. Thus, even if it had been obvious to combine the teachings of Hopkins et al and Hawkins et al, one of ordinary skill would not have arrived at the subject matter recited in claim 37.

Rejection under 35 U.S.C. 103(a) over Hopkins et al (US 5,620,599) in view of Coates et al (US 5,707,518).

Claim 40

Appellants respectfully submit that the examiner erred in rejecting claim 40 because Hopkins et al fail to disclose that the filter element is inserted inside the filter housing via guide rails provided on the side walls, and providing Hopkins et al with this feature would not have been obvious in view of the teachings of Coates et al.

Claim 40 depends from claim 15. Claim 40 recites that the filter element is inserted inside the filter housing via guide rails provided on the side walls.

The examiner relies upon Coates et al as teaching a filter assembly 22 (Fig 9) having a filter element 42 inserted inside a filter housing 40 via ribs 86 (guide rails). The examiner

points out that the ribs 86 support and radially align or orient the filter element 42 inside the housing 40 as explained in col. 5, ll. 22-28 of the specification.

The examiner concludes that it would have been obvious to provide the housing of Hopkins et al with guide rails, as taught by Coates et al, in order to support and radially align or orient the filter element inside the housing (Office action mailed May 11, 2010, pgs. 8, 9).

Contrary to the examiner's conclusion, appellants submit that the rejection of claim 40 is not a proper or valid rejection for reasons presented below.

The Board's attention is directed to col.1, ll. 11-15, wherein Hopkins et al describe the invention as a low hold-up filter assembly which provides for reduced fluid hold-up volume waste when replacing filters and for even flow distribution through the filter during normal use (col. 1, ll. 11-15).

Hopkins et al explain that a costly problem with the use of any filter is hold-up volume waste. When a filter must be replaced, a portion of the fluid remains within the filter element housing. The remaining fluid cannot be reused due to contamination; therefore, this excess fluid must be disposed of and replacement of the fluid can be costly, e.g., six hundred or more dollars per gallon. In addition to the direct cost of replacing the wasted fluid, there is the cost of disposal. Also, environmental factors need to be considered in the disposal of the chemicals thereby making disposal of the chemicals potentially as costly as buying new chemicals (col. 1, ll. 18-41).

To solve the problem of hold-up volume waste, Hopkins et al teach a filter assembly 100 that provides for an efficient and low cost means of decreasing fluid hold-up volume waste. The filter assembly comprises a filter element 300 and a sleeve 400 which fit into a filter housing 200 and occupy a significant portion of the volume of the housing, thereby

leaving less fluid in the housing during filter change. The sleeve 400 is positioned in the filter housing 200 surrounding the filter element and preferably occupies substantially the entire volume between the filter housing 200 and the filter 302. Thus, the sleeve virtually fills the volume of the gap between the larger diameter filter housing 200 and the filter 302. By occupying a significant portion of the volume between the filter housing 200 and the filter 302, the sleeve 400 greatly reduces the hold-up volume of the filter housing (col. 4, l. 66 - col. 5, l. 5). Because the sleeve occupies a significant portion of the volume between the filter housing 200 and the filter 302, there is little waste fluid remaining in the filter housing 200 when the filter element 300 and the sleeve 400 are removed (col. 7, ll. 27-31).

Coates et al teach a filter assembly 22 having a filter housing 40 comprising a first housing part 44 and a second housing part 46 (Fig. 9, col. 3, ll. 56-57). The first housing part 44 is closed at its upper end by an end wall 66 and has a generally cylindrical sidewall 68 (col. 4, ll. 12-14). The second housing part 46 includes a bowl-shaped lower portion 78 and an upstanding, generally cylindrical sidewall 80 (col. 4, ll. 43-44). The bowl-shaped portion 78 of the second housing part has a series of ribs 86 formed on an internal surface thereof to aid in locating and supporting the filter cartridge 42 during assembly. The ribs 86 include a first part 86a and a second part 86b. The first parts 86a of the ribs 86 define a horizontal support surface for the filter cartridge 42, while the second parts 86b extend upwardly from the first parts 86a and define vertical surfaces which radially surround and support the filter cartridge 42 (col. 4, ll. 52-60).

Thus, the first part 86a of the ribs 86 support the filter cartridge 42 a significant distance away from the bowl-shaped portion 78 of the second housing part 46, while the second part 86b of the ribs 86 functions to space the filter cartridge 42 a significant distance

away from the cylindrical sidewall 68 of the first housing part 44 and the cylindrical sidewall 80 of the second housing part 46.

Therefore, if one skilled in the art were to actually combine the teachings of Hopkins et al and Coates et al, the resulting structure would be a filter assembly constructed according to the teachings of Hopkins et al, but having a series of ribs formed on the internal surface of the filter housing 200, as taught by Coates et al, to aid in locating and supporting the filter element 300 during assembly. However, in addition to locating and supporting the filter element 300 during assembly, the first part of the ribs would define a horizontal support surface for the filter element 300 that would space the filter element 200 a significant distance away from the end wall 213 of the filter housing 200, while the second part of the ribs would function to space the filter element 200 a significant distance from the cylindrical sidewall 211 of the filter housing 200.

MPEP §2143.01(V) states:

"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

Appellants submit that providing Hopkins et al with ribs, as proposed by the examiner, would result in the filter element 300 being spaced a significant distance from the end wall 213 and the side wall 211 of the filter housing 200, which would increase the hold-up volume waste in the filter housing, thus rendering the prior art invention unsatisfactory for its intended purpose,

Accordingly, since the proposed modification would render the invention of Hopkins et al unsatisfactory for its intended purpose, there can be no suggestion or motivation to make the proposed modification. Hence, claim 40 is not rendered obvious by the combined teachings of Hopkins et al and Coates et al.

In addition to the problem of hold-up volume waste, Hopkins et al further explain that another problem encountered in filter use is uneven fluid flow. For example, where more fluid flows through the upper portion of a filter element than through the lower portion, more dirt and/or other debris is deposited on the upper portion of the filter than on the lower portion. This uneven loading of the filter element can shorten the life of the filter element, which results in more frequent replacement of the filter element and increased material and labor costs, as well as system down time (col. 1, ll. 42-51).

To solve the problem of uneven fluid flow, Hopkins et al teach configuring the filter element and sleeve to provide even flow distribution along a filter disposed in the filter housing while maintaining desired system flow rates and pressures (col. 3, ll. 7-14). To insure evenly distributed flow of fluid along the filter, the sleeve 400 is provided with a plurality of channels 411 formed in the outer periphery of the sleeve and a plurality of flow apertures 422 formed in the channels 411 and communicating through the sleeve (col. 5, ll. 45-49). The channels and flow apertures are configured to provide adequate flow rates, even flow distribution, and very small pressure drops as fluid flows to or from the filter (col. 5, ll. 59-62).

MPEP §2143.01(VI) states:

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references

are not sufficient to render the claims *prima facie* obvious." *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

If one skilled in the art were to actually combine the teachings of Hopkins et al and Coates et al, the resulting structure would be a filter assembly constructed according to the teachings of Hopkins et al, with a series of ribs formed on the lower internal surface of the filter housing 200, as taught by Coates et al, protruding into the gap between the sleeve 400 and the filter housing 200. The protruding series of ribs along the internal surface of the filter housing 200 would interfere with the even flow distribution of the fluid along the filter and the maintaining of desired system flow rates and pressures. The uneven flow would result in more fluid flow through the upper portion of a filter element than through the lower portion, and more dirt and/or other debris being deposited on the upper portion of the filter than on the lower portion. This uneven loading of the filter element would shorten the life of the filter element, which would result in more frequent replacement of the filter element and increased material and labor costs, as well as system down time. This is the very problem that Hopkins et al intend to avoid by their invention (col. 1, ll. 42-51).

Accordingly, since the examiner's proposed modification would change the principle of operation of Hopkins et al, the teachings of the references are not sufficient to render claim 40 *prima facie* obvious as required by 35 U.S.C. 103.

Additionally, appellants submit that the examiner has not provided a viable rationale for combining the teachings of Coates et al with Hopkins et al since a person of ordinary skill in the art would not have been led to provide the filter housing of Hopkins et al with guide rails for the reasons suggested by the examiner, i.e., in order to support and radially align or orient the filter element inside the housing. Hopkins et al, at col. 4, ll. 33-36, indicate that the

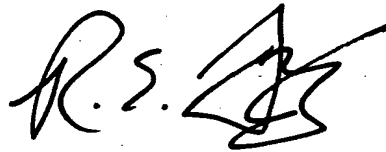
end caps 304 and 306 serve to position and hold the filter 302 in substantially axial alignment within the filter housing 200 and provide support therefore. Therefore, since the end caps 304 and 306 already perform the function of supporting and aligning the filter 302 within the filter housing 200, one of ordinary skill in the art would not have been motivated to combine the teachings of Coates et al with that of Hopkins et al based on the examiner's rationale. Accordingly, the examiner has not provided a cogent reason to combine the teachings of Coates et al with the teachings of Hopkins et al to support a conclusion of obviousness as required under 35 U.S.C. 103. For this additional reason, claim 40 is not rendered obvious by the combined teachings of Hopkins et al and Coates et al.

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Conclusion

For the reasons stated above, the appellants request that the Examiner's rejections of the claims be reversed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'R. E. Greigg', with a stylized flourish at the end.

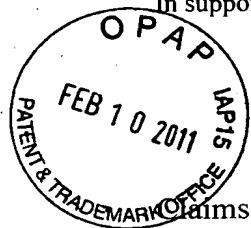
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VIII - CLAIMS APPENDIX

Claims 1-14. (Canceled)

15. (Rejected) A fuel filter comprising

an elongated flat filter housing having a longitudinal axis, at least first and second longitudinally extending side walls, and opposing ends extending vertically to the longitudinal axis,

at least one substantially elongated flat filter element contained in the housing, the at least one substantially flat filter element being embodied overall as planar or flat in shape having a clean side and a dirty side which are both substantially planar and are situated essentially parallel to each other, the clean side being disposed between a first elongated surface of the flat filter element and the first side wall of the housing, and the dirty side being disposed between a second elongated surface of the flat filter element and the second side wall of the housing, which second elongated surface opposes the first elongated surface,

a fuel inlet provided on an end of the housing delivering fuel to be filtered into the housing and a fuel outlet provided on an end of the housing delivering filtered fuel from the housing,

at least one wall encapsulating the clean side of the filter element, the at least one encapsulating wall being disposed between the clean side of the filter element and the first side wall of the filter housing, wherein the filter element and the at least one encapsulating wall together constitute a filter insert which is inserted into the housing, and

a gap in the region of the fuel inlet extending in the longitudinal direction of the filter housing between the at least one wall encapsulating the clean side of the filter element and the first wall of the filter housing, wherein the at least one wall encapsulating the clean side of the filter element has grooves in the side of the wall oriented toward the first side wall of the filter housing forming part of the gap for uniformly distributing fuel from the fuel inlet over the filter element to the dirty side of the filter element.

16. **(Rejected)** The fuel filter according to claim 15, wherein the filter element comprises a folded filter material.

17. **(Rejected)** The fuel filter according to claim 16, wherein the filter material is folded essentially into the shape of a block.

18. **(Rejected)** The fuel filter according to claim 15, wherein the filter insert comprises an encapsulated clean side that is connected to the fuel outlet.

19. **(Rejected)** The fuel filter according to claim 17, wherein the filter insert comprises an encapsulated clean side that is connected to the fuel outlet.

Claims 20-24. **(Canceled)**

25. **(Rejected)** The fuel filter according to claim 15, wherein the fuel inlet and the fuel outlet are provided on the same end of the filter housing.

26. **(Rejected)** The fuel filter according to claim 25, wherein the fuel inlet and the fuel outlet are provided on opposite ends of the filter housing.

27. **(Rejected)** The fuel filter according to claim 15, further comprising a flow entry that at least reduces turbulence in the region of the side where the flow strikes the filter element.

28. **(Rejected)** The fuel filter according to claim 15, further comprising a flow baffle provided in the fuel inlet.

Claim 29. **(Canceled)**

30. **(Rejected)** The fuel filter according to claim 28, wherein the flow baffle is inclined upward in relation to the flow direction.

31. **(Rejected)** The fuel filter according to claim 15, wherein the filter housing comprises a block-shaped housing part and a cover that closes the housing part.

32. **(Rejected)** The fuel filter according to claim 17, wherein the filter housing comprises a block-shaped housing part and a cover that closes the housing part.

33. **(Rejected)** The fuel filter according to claim 31, wherein the housing part and the cover are connected to each other by means of a nondetachable connection.

34. **(Rejected)** The fuel filter according to claim 15, further comprising a distribution stabilizer on the inlet side.
35. **(Rejected)** The fuel filter as recited in claim 15, wherein the grooves in the encapsulating wall comprise a plurality of parallel longitudinal grooves and parallel transverse grooves extending at approximately right angles to one another.
36. **(Rejected)** The fuel filter as recited in claim 15, wherein the second side wall of the filter housing slopes downward toward a water outlet and constitutes a sump for water separated out on the dirty side of the filter element.
37. **(Rejected)** The fuel filter as recited in claim 15, wherein electrical connections for a heating unit, a temperature sensor and a water level sensor are provided on an end of the filter housing.
38. **(Rejected)** The fuel filter as recited in claim 15, wherein the clean side of the filter element is between the first elongated surface of the flat filter element and the at least one encapsulating wall.
39. **(Rejected)** The fuel filter as recited in claim 38, wherein the clean side of the filter element is connected via a duct segment to the fuel outlet.

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40. **(Rejected)** The fuel filter as recited in claim 15, wherein the filter element is inserted inside the filter housing via guide rails provided on the side walls.

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IX - EVIDENCE APPENDIX

None

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X - RELATED PROCEEDINGS APPENDIX

None